

Molecular Weight: 171.15
 Density: 1.27 g/cm³
 Boiling Point: 170-175 °C
 Melting Point: 100-105 °C
 Refractive Index: 1.45
 Solubility: Soluble in water, ethanol, and many organic solvents.
 Chemical Structure: NC(=O)N
 EINECS Number: 201-200-5
 Hazard Codes: H302, H314, H332, H334
 P-Statements: P201, P202, P273, P301, P302, P303, P304, P305, P306, P307, P308, P309, P310, P312, P313, P314, P315, P316, P317, P318, P319, P320, P321, P322, P323, P324, P325, P326, P327, P328, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P341, P342, P343, P344, P345, P346, P347, P348, P349, P350, P351, P352, P353, P354, P355, P356, P357, P358, P359, P360, P361, P362, P363, P364, P365, P366, P367, P368, P369, P370, P371, P372, P373, P374, P375, P376, P377, P378, P379, P380, P381, P382, P383, P384, P385, P386, P387, P388, P389, P390, P391, P392, P393, P394, P395, P396, P397, P398, P399, P400, P401, P402, P403, P404, P405, P406, P407, P408, P409, P410, P411, P412, P413, P414, P415, P416, P417, P418, P419, P420, P421, P422, P423, P424, P425, P426, P427, P428, P429, P430, P431, P432, P433, P434, P435, P436, P437, P438, P439, P440, P441, P442, P443, P444, P445, P446, P447, P448, P449, P450, P451, P452, P453, P454, P455, P456, P457, P458, P459, P460, P461, P462, P463, P464, P465, P466, P467, P468, P469, P470, P471, P472, P473, P474, P475, P476, P477, P478, P479, P480, P481, P482, P483, P484, P485, P486, P487, P488, P489, P490, P491, P492, P493, P494, P495, P496, P497, P498, P499, P500, P501, P502, P503, P504, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P515, P516, P517, P518, P519, P520, P521, P522, P523, P524, P525, P526, P527, P528, P529, P530, P531, P532, P533, P534, P535, P536, P537, P538, P539, P540, P541, P542, P543, P544, P545, P546, P547, P548, P549, P550, P551, P552, P553, P554, P555, P556, P557, P558, P559, P560, P561, P562, P563, P564, P565, P566, P567, P568, P569, P570, P571, P572, P573, P574, P575, P576, P577, P578, P579, P580, P581, P582, P583, P584, P585, P586, P587, P588, P589, P590, P591, P592, P593, P594, P595, P596, P597, P598, P599, P600, P601, P602, P603, P604, P605, P606, P607, P608, P609, P610, P611, P612, P613, P614, P615, P616, P617, P618, P619, P620, P621, P622, P623, P624, P625, P626, P627, P628, P629, P630, P631, P632, P633, P634, P635, P636, P637, P638, P639, P640, P641, P642, P643, P644, P645, P646, P647, P648, P649, P650, P651, P652, P653, P654, P655, P656, P657, P658, P659, P660, P661, P662, P663, P664, P665, P666, P667, P668, P669, P670, P671, P672, P673, P674, P675, P676, P677, P678, P679, P680, P681, P682, P683, P684, P685, P686, P687, P688, P689, P690, P691, P692, P693, P694, P695, P696, P697, P698, P699, P700, P701, P702, P703, P704, P705, P706, P707, P708, P709, P710, P711, P712, P713, P714, P715, P716, P717, P718, P719, P720, P721, P722, P723, P724, P725, P726, P727, P728, P729, P730, P731, P732, P733, P734, P735, P736, P737, P738, P739, P740, P741, P742, P743, P744, P745, P746, P747, P748, P749, P750, P751, P752, P753, P754, P755, P756, P757, P758, P759, P760, P761, P762, P763, P764, P765, P766, P767, P768, P769, P770, P771, P772, P773, P774, P775, P776, P777, P778, P779, P780, P781, P782, P783, P784, P785, P786, P787, P788, P789, P790, P791, P792, P793, P794, P795, P796, P797, P798, P799, P800, P801, P802, P803, P804, P805, P806, P807, P808, P809, P810, P811, P812, P813, P814, P815, P816, P817, P818, P819, P820, P821, P822, P823, P824, P825, P826, P827, P828, P829, P830, P831, P832, P833, P834, P835, P836, P837, P838, P839, P840, P841, P842, P843, P844, P845, P846, P847, P848, P849, P850, P851, P852, P853, P854, P855, P856, P857, P858, P859, P860, P861, P862, P863, P864, P865, P866, P867, P868, P869, P870, P871, P872, P873, P874, P875, P876, P877, P878, P879, P880, P881, P882, P883, P884, P885, P886, P887, P888, P889, P890, P891, P892, P893, P894, P895, P896, P897, P898, P899, P900, P901, P902, P903, P904, P905, P906, P907, P908, P909, P910, P911, P912, P913, P914, P915, P916, P917, P918, P919, P920, P921, P922, P923, P924, P925, P926, P927, P928, P929, P930, P931, P932, P933, P934, P935, P936, P937, P938, P939, P940, P941, P942, P943, P944, P945, P946, P947, P948, P949, P950, P951, P952, P953, P954, P955, P956, P957, P958, P959, P960, P961, P962, P963, P964, P965, P966, P967, P968, P969, P970, P971, P972, P973, P974, P975, P976, P977, P978, P979, P980, P981, P982, P983, P984, P985, P986, P987, P988, P989, P990, P991, P992, P993, P994, P995, P996, P997, P998, P999

Abstract

The present study is a systematic investigation of the chemical reactions of selected from the group consisting of alkyl metal amides, urea, biuret, sulfamide, formamide, cyanidine, ethylenediamine, cyanoguanidine and melamine and furnishing the resulting chemical products which contain the chemical structure of the

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1. The first step in the process of identifying a problem is to define the problem. This involves identifying the symptoms of the problem and determining the scope of the problem. Once the problem has been defined, the next step is to identify the causes of the problem. This involves identifying the factors that are contributing to the problem and determining the underlying causes. Once the causes have been identified, the next step is to develop a plan of action. This involves identifying the steps that need to be taken to solve the problem and determining the resources that will be needed to implement the plan. Once a plan of action has been developed, the next step is to implement the plan. This involves carrying out the steps that have been identified in the plan and monitoring the progress of the implementation. Finally, the last step in the process is to evaluate the results of the implementation. This involves determining whether the problem has been solved and whether the resources have been used effectively.

[illegible]

Principal products, except when cyanoguanidine is employed, are the isomeric azides, *trans*-N²-F₂ and N²-F₄. The usually dominant isomer or product is NF₃, proportions of which may vary as indicated in the appended Examples, and may vary in consistency, depending upon the starting material employed. For example lithium azide may produce NF₃ and N²-F₂ and substantially no N²-F₄, while sodium azide may produce NF₃ and N²-F₄ and substantially no N²-F₂. These products are readily recoverable from the reactor, for example by cooling and low temperature condensation and fractional distillation. Reactor residues are generally treated with various fluorides. NF₃ is of known utility, for example as an intermediate for reaction with a metal to make tetrafluorohydrazine, N²-F₄, a commercially available material. N²-F₂ is useful as a catalyst for the polymerization of monomers such as methyl methacrylate, styrene and cyclopentadiene.

The principles of the invention as described above may be used to advantage to fluorinate cyanoguanidine, ##EQ-11## and thereby effect high yield production of hexafluorocyanoguanidine (CF₃NH₂) (see, for example, 22 DEG C.), a known compound which is a gas at normal conditions. In this embodiment, reaction temperatures may be substantially the same as for 2,4-DG (230 DEG C.) or preferably 2-DEG-160 DEG C. Otherwise all of the above operational techniques and procedural factors, such as compositions of catalysts, proportioning of the cyanoguanidine and catalyst, rate of feed of fluorine and dilution of the same, and recovery of CF₃NH₂, likewise apply in practice of the present aspect of the invention.

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

$$|E_X(A, \mu, \nu)| \leq 1$$

About 1 g. of lithium anhydride was placed in a 100-ml. glass reaction vessel, in about a 50% weight ratio. The mixture was placed in a small U-tube, wall thickness about 0.001 inch, which was annealed in a dry air stream. For purification purposes, general fusion was placed through a neoprene rubber filter. Molten sodium fluoride at a flow rate of approximately 20 to 30 cc./min. was heated and added dropwise to the melt. The mixture was stirred for 10 min. and then cooled. The melt was broken into small pieces and dried in a vacuum oven at 100°C. for 24 hr. The dried material was then placed in a desiccator and stored for use.

...the reaction mixture was cooled to about 0°C and the reaction was continued for about 1 hour. The reaction mixture was then poured into water and the solid product was filtered off and dried.

The solid product was then dissolved in a small amount of water and the solution was poured into a large volume of water. The solid product was then filtered off and dried.

EXAMPLE 3

A reaction mixture was prepared by combining 100 g of 1,1-difluoro-2,2-dichloroethane with 10 g of 1,1-difluoro-2,2-dichloroethane. The reaction mixture was then heated to about 100°C and the reaction was continued for about 1 hour. The reaction mixture was then cooled to about 0°C and the reaction was continued for about 1 hour. The reaction mixture was then poured into water and the solid product was filtered off and dried.

EXAMPLE 4

A reaction mixture was prepared by combining 100 g of 1,1-difluoro-2,2-dichloroethane with 10 g of 1,1-difluoro-2,2-dichloroethane. The reaction mixture was then heated to about 100°C and the reaction was continued for about 1 hour. The reaction mixture was then cooled to about 0°C and the reaction was continued for about 1 hour. The reaction mixture was then poured into water and the solid product was filtered off and dried.

EXAMPLE 5

A reaction mixture was prepared by combining 100 g of 1,1-difluoro-2,2-dichloroethane with 10 g of 1,1-difluoro-2,2-dichloroethane. The reaction mixture was then heated to about 100°C and the reaction was continued for about 1 hour. The reaction mixture was then cooled to about 0°C and the reaction was continued for about 1 hour. The reaction mixture was then poured into water and the solid product was filtered off and dried.

EXAMPLE 6

A reaction mixture was prepared by combining 100 g of 1,1-difluoro-2,2-dichloroethane with 10 g of 1,1-difluoro-2,2-dichloroethane. The reaction mixture was then heated to about 100°C and the reaction was continued for about 1 hour. The reaction mixture was then cooled to about 0°C and the reaction was continued for about 1 hour. The reaction mixture was then poured into water and the solid product was filtered off and dried.

EXAMPLE 7

about 100 g of product and 100 g of H_2 were added and charged into the reactor of Example 1. Scrubbed fluorine gas flow rate was adjusted to about 20 cfm and after nitrogen addition of about 1.1, the fluorine-nitrogen mixture was charged into the reactor. Throughout the run, reactor temperature was maintained at about 25 DEG C. As determined by infrared analysis of the reactor off-gas, immediately on introduction of fluorine into the reactor, nitrogen trifluoride formed, and within about 30 minutes a yield of about 5 mmHg of NF_3 was obtained as determined by infrared analysis of the reactor off-gas. After reaction time of about 2 hours, reactor off-gas contained about 60 mmHg of NF_3 and 20 mmHg of N_2F_2 . The gaseous impurities included small amounts of NO , H_2O , H and NO_2 .

EXAMPLE 2

About 100 g of product and 100 g of H_2 were added and charged into the reactor of Example 1. Scrubbed fluorine gas flow rate was adjusted to about 20 cfm and after nitrogen addition of about 1.1, the fluorine-nitrogen mixture was charged into the reactor. Throughout the run, reactor temperature was maintained at about 25 DEG C. As determined by infrared analysis of the reactor off-gas, immediately on introduction of fluorine into the reactor, nitrogen trifluoride formed, and within about 30 minutes a yield of about 5 mmHg of NF_3 was obtained as determined by infrared analysis of the reactor off-gas. After reaction time of about 2 hours, reactor off-gas contained about 60 mmHg of NF_3 and 20 mmHg of N_2F_2 . The gaseous impurities included small amounts of NO , H_2O , H and NO_2 .

EXAMPLE 3

About 100 g of product and 100 g of H_2 were added and charged into the reactor of Example 1. Scrubbed fluorine gas flow rate was adjusted to about 20 cfm and after nitrogen addition of about 1.1, the fluorine-nitrogen mixture was charged into the reactor. Throughout the run, reactor temperature was maintained at about 25 DEG C. Within half an hour after charging of fluorine, NF_3 and N_2F_2 were formed as determined by infrared analysis of the reactor off-gas, and the off-gas contained about 60 mmHg of NF_3 and 20 mmHg of N_2F_2 increased rapidly. Then N_2F_4 was observed and masked the infrared bands of N_2F_2 . At about 105 min. after start of infrared bands of N_2F_4 became so strong that the absorbance became infinite. Infrared analysis of about a 50% nitrogen dilution of the product gas showed presence of about 20 mmHg of NF_3 and 40 mmHg of N_2F_4 . The apparent molar quantities the same as foregoing, after about one hour operation at above conditions. Exhaust temperature of the reactor was raised to about 75 DEG C. 100 DEG C. As in Example 1, and shown in the infrared analysis of the off-gas of the reactor showed the presence of about 200 mmHg of NF_3 and about 200 mmHg of N_2F_4 .

EXAMPLE 4

About 100 g of product and 100 g of H_2 were added and charged into the reactor of Example 1. Scrubbed fluorine gas flow rate was adjusted to about 20 cfm and after nitrogen addition of about 1.1, the fluorine-nitrogen mixture was charged into the reactor. Throughout the run, reactor temperature was maintained at about 25 DEG C. Within half an hour after charging of fluorine, NF_3 and N_2F_2 were formed as determined by infrared analysis of the reactor off-gas, and the off-gas contained about 60 mmHg of NF_3 and 20 mmHg of N_2F_2 increased rapidly. Then N_2F_4 was observed and masked the infrared bands of N_2F_2 . At about 105 min. after start of infrared bands of N_2F_4 became so strong that the absorbance became infinite. Infrared analysis of about a 50% nitrogen dilution of the product gas showed presence of about 20 mmHg of NF_3 and 40 mmHg of N_2F_4 . The apparent molar quantities the same as foregoing, after about one hour operation at above conditions. Exhaust temperature of the reactor was raised to about 75 DEG C. 100 DEG C. As in Example 1, and shown in the infrared analysis of the off-gas of the reactor showed the presence of about 200 mmHg of NF_3 and about 200 mmHg of N_2F_4 .

[illegible]

1. From 1953 to 1955, the following groups were observed:
 1. Group 1: 1953-1955, 1957-1958, 1960-1961, 1963-1964, 1966-1967, 1969-1970, 1972-1973, 1975-1976, 1978-1979, 1981-1982, 1984-1985, 1987-1988, 1990-1991, 1993-1994, 1996-1997, 1999-2000, 2002-2003, 2005-2006, 2008-2009, 2011-2012, 2014-2015, 2017-2018, 2020-2021, 2023-2024, 2026-2027, 2029-2030, 2032-2033, 2035-2036, 2038-2039, 2041-2042, 2044-2045, 2047-2048, 2050-2051, 2053-2054, 2056-2057, 2059-2060, 2062-2063, 2065-2066, 2068-2069, 2071-2072, 2074-2075, 2077-2078, 2080-2081, 2083-2084, 2086-2087, 2089-2090, 2092-2093, 2095-2096, 2098-2099, 2101-2102, 2104-2105, 2107-2108, 2110-2111, 2113-2114, 2116-2117, 2119-2120, 2122-2123, 2125-2126, 2128-2129, 2131-2132, 2134-2135, 2137-2138, 2140-2141, 2143-2144, 2146-2147, 2149-2150, 2152-2153, 2155-2156, 2158-2159, 2161-2162, 2164-2165, 2167-2168, 2170-2171, 2173-2174, 2176-2177, 2179-2180, 2182-2183, 2185-2186, 2188-2189, 2191-2192, 2194-2195, 2197-2198, 2199-2200, 2202-2203, 2205-2206, 2208-2209, 2211-2212, 2214-2215, 2217-2218, 2220-2221, 2223-2224, 2226-2227, 2229-2230, 2232-2233, 2235-2236, 2238-2239, 2241-2242, 2244-2245, 2247-2248, 2250-2251, 2253-2254, 2256-2257, 2259-2260, 2262-2263, 2265-2266, 2268-2269, 2271-2272, 2274-2275, 2277-2278, 2280-2281, 2283-2284, 2286-2287, 2289-2290, 2292-2293, 2295-2296, 2298-2299, 2301-2302, 2304-2305, 2307-2308, 2310-2311, 2313-2314, 2316-2317, 2319-2320, 2322-2323, 2325-2326, 2328-2329, 2331-2332, 2334-2335, 2337-2338, 2340-2341, 2343-2344, 2346-2347, 2349-2350, 2352-2353, 2355-2356, 2358-2359, 2361-2362, 2364-2365, 2367-2368, 2370-2371, 2373-2374, 2376-2377, 2379-2380, 2382-2383, 2385-2386, 2388-2389, 2391-2392, 2394-2395, 2397-2398, 2399-2400, 2402-2403, 2405-2406, 2408-2409, 2411-2412, 2414-2415, 2417-2418, 2420-2421, 2423-2424, 2426-2427, 2429-2430, 2432-2433, 2435-2436, 2438-2439, 2441-2442, 2444-2445, 2447-2448, 2450-2451, 2453-2454, 2456-2457, 2459-2460, 2462-2463, 2465-2466, 2468-2469, 2471-2472, 2474-2475, 2477-2478, 2480-2481, 2483-2484, 2486-2487, 2489-2490, 2492-2493, 2495-2496, 2498-2499, 2501-2502, 2504-2505, 2507-2508, 2510-2511, 2513-2514, 2516-2517, 2519-2520, 2522-2523, 2525-2526, 2528-2529, 2531-2532, 2534-2535, 2537-2538, 2540-2541, 2543-2544, 2546-2547, 2549-2550, 2552-2553, 2555-2556, 2558-2559, 2561-2562, 2564-2565, 2567-2568, 2570-2571, 2573-2574, 2576-2577, 2579-2580, 2582-2583, 2585-2586, 2588-2589, 2591-2592, 2594-2595, 2597-2598, 2599-2600, 2602-2603, 2605-2606, 2608-2609, 2611-2612, 2614-2615, 2617-2618, 2620-2621, 2623-2624, 2626-2627, 2629-2630, 2632-2633, 2635-2636, 2638-2639, 2641-2642, 2644-2645, 2647-2648, 2650-2651, 2653-2654, 2656-2657, 2659-2660, 2662-2663, 2665-2666, 2668-2669, 2671-2672, 2674-2675, 2677-2678, 2680-2681, 2683-2684, 2686-2687, 2689-2690, 2692-2693, 2695-2696, 2698-2699, 2701-2702, 2704-2705, 2707-2708, 2710-2711, 2713-2714, 2716-2717, 2719-2720, 2722-2723, 2725-2726, 2728-2729, 2731-2732, 2734-2735, 2737-2738, 2740-2741, 2743-2744, 2746-2747, 2749-2750, 2752-2753, 2755-2756, 2758-2759, 2761-2762, 2764-2765, 2767-2768, 2770-2771, 2773-2774, 2776-2777, 2779-2780, 2782-2783, 2785-2786, 2788-2789, 2791-2792, 2794-2795, 2797-2798, 2799-2800, 2802-2803, 2805-2806, 2808-2809, 2811-2812, 2814-2815, 2817-2818, 2820-2821, 2823-2824, 2826-2827, 2829-2830, 2832-2833, 2835-2836, 2838-2839, 2841-2842, 2844-2845, 2847-2848, 2850-2851, 2853-2854, 2856-2857, 2859-2860, 2862-2863, 2865-2866, 2868-2869, 2871-2872, 2874-2875, 2877-2878, 2880-2881, 2883-2884, 2886-2887, 2889-2890, 2892-2893, 2895-2896, 2898-2899, 2901-2902, 2904-2905, 2907-2908, 2910-2911, 2913-2914, 2916-2917, 2919-2920, 2922-2923, 2925-2926, 2928-2929, 2931-2932, 2934-2935, 2937-2938, 2940-2941, 2943-2944, 2946-2947, 2949-2950, 2952-2953, 2955-2956, 2958-2959, 2961-2962, 2964-2965, 2967-2968, 2970-2971, 2973-2974, 2976-2977, 2979-2980, 2982-2983, 2985-2986, 2988-2989, 2991-2992, 2994-2995, 2997-2998, 2999-3000, 3002-3003, 3005-3006, 3008-3009, 3011-3012, 3014-3015, 3017-3018, 3020-3021, 3023-3024, 3026-3027, 3029-3030, 3032-3033, 3035-3036, 3038-3039, 3041-3042, 3044-3045, 3047-3048, 3050-3051, 3053-3054,

The integral $\int_{\text{surface}} \mathbf{u} \cdot \mathbf{n} \, dA$ is defined as "outgoing" radiative heat fluxes or, equivalently, as the sum of the radiative heat fluxes observed in the radiation cone.

Data supplied from the following database: 10

[illegible]

1. If a change of order is required, the change must be requested by the contractor before the contract is completed.

[illegible]

7. The process of claim 5, in which the metal fluoride catalyst introduced into the reaction zone is a bifluoride.

3. The process of claim 5 in which the metal fluoride portion of the metal fluoride portion of the metal fluoride of an alkali metal of the group consisting of lithium and sodium.

The metal furnace catalyst is a bitoxide of an alkali metal or alkali earth metal. The temperatures in the reaction zone are maintained between 1000 and 1200 DEGS and a white-hot flame is obtained. The reaction is carried out in an equal volume of inert gas.

11. $\frac{1}{2} \log_2 \frac{1}{1 - 0.95} = 1.67$ bits/symbol. The number of symbols per second is $1000/1.67 = 599$ symbols/s. The number of bits per second is $599 \times 10 = 5990$ bits/s.

^a The pressure of the CO_2 when the starting material is free.

the 1990s, and the 1990s have been a decade of rapid technological change.

* This is a language of play, of his culture, the same culture ungrounded by philosophy.